

Claims

Sub 17
1. A prosthetic repair fabric for repairing a tissue or muscle wall defect located in the inguinal canal near the spermatic cord, the inguinal canal having a medial corner and a lateral end, the prosthetic repair fabric comprising:

5 a layer of mesh fabric with a plurality of interstices that are constructed and arranged to allow tissue ingrowth, the mesh fabric being susceptible to the formation of adhesions with sensitive tissue and organs, the mesh fabric including a medial section and a lateral section that are configured to be positioned adjacent the medial corner and the lateral end of the inguinal canal, respectively, when the prosthetic repair fabric is placed in the inguinal
10 canal; and

at least one barrier layer that inhibits the formation of adhesions with sensitive tissue and organs, the barrier layer being disposed on at least one side of the layer of mesh fabric to cover at least a portion of the medial section that is to be positioned adjacent the spermatic cord when the prosthetic repair fabric is placed in the inguinal canal, the barrier layer to
15 inhibit the formation of adhesions between the spermatic cord and the mesh fabric;

at least a portion of the lateral section of the mesh fabric being free of the barrier layer on both sides thereof to enhance tissue ingrowth therein.

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20 2. The prosthetic repair fabric according to claim 1, wherein the medial section includes a rounded medial edge configured to approximate the shape of the medial corner of the inguinal canal, the barrier layer being configured to conform to the medial edge.

25 3. The prosthetic repair fabric according to claim 2, wherein the barrier layer includes a rounded lateral edge opposite the medial edge.

4. The prosthetic repair fabric according to claim 3, wherein the barrier layer has a generally tear drop shape.

30 5. The prosthetic repair fabric according to claim 2, wherein the layer of mesh fabric and the barrier layer are connected by a series of stitches.

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6. The prosthetic repair fabric according to claim 5, wherein the series of stitches includes at least one series of continuous stitches having a stitch pattern, at least a portion of the stitch pattern approximating the shape of the medial edge.

5 7. The prosthetic repair fabric according to claim 6, wherein a central portion of the barrier layer is substantially free of the series of stitches.

8. The prosthetic repair fabric according to claim 6, wherein the at least one series of continuous stitches includes a pair of continuous stitches, the stitch pattern for each
10 of the pair of continuous stitches approximating the shape of the medial edge.

9. The prosthetic repair fabric according to claim 1, wherein each of the layer of mesh fabric and the barrier layer includes a medial edge and a lateral edge opposite the medial edge, the medial edge of the barrier layer being disposed adjacent the medial edge of
15 the layer of mesh fabric and the lateral edge of the barrier layer being disposed intermediate the medial and lateral edges of the layer of mesh fabric.

10. The prosthetic repair fabric according to claim 9, wherein a substantial portion of the lateral section is free of the barrier layer.
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11. The prosthetic repair fabric according to claim 10, wherein the lateral edge of the barrier layer is located proximate a central portion of the layer of mesh fabric.

12. The prosthetic repair fabric according to claim 1, wherein the barrier layer
25 includes at least one flap that is separable from the layer of mesh fabric, the flap being foldable through the layer of mesh fabric to isolate the spermatic cord from an internal edge of the layer of mesh fabric when the spermatic cord is routed therethrough.

13. The prosthetic repair fabric according to claim 12, wherein the layer of mesh
30 fabric has an aperture adapted to receive the spermatic cord therethrough, the flap being positioned adjacent the aperture.

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14. The prosthetic repair fabric according to claim 13, wherein the at least one flap includes a plurality of flaps disposed about the aperture.

5 15. The prosthetic repair fabric according to claim 12, wherein the flap includes at least one portion that is constructed and arranged to be wrapped about the spermatic cord.

16. The prosthetic repair fabric according to claim 1, wherein the layer of mesh fabric includes a slit extending inwardly from an outer edge thereof toward the barrier layer.

10 17. The prosthetic repair fabric according to claim 16, wherein the layer of mesh fabric further includes a keyhole positioned adjacent the barrier layer, the slit extending from the keyhole to the outer edge of the layer of mesh fabric.

15 18. The prosthetic repair fabric according to claim 16, wherein the slit extends in a longitudinal direction along the lateral section to form a pair of tails that are configured to receive the spermatic cord therebetween.

20 19. The prosthetic repair fabric according to claim 1, wherein the layer of mesh fabric is formed from polypropylene.

20. The prosthetic repair fabric according to claim 1, wherein the barrier layer is formed from ePTFE.

25 21. The prosthetic repair fabric according to claim 1, wherein the layer of mesh fabric and the barrier layer are symmetric.

22. The prosthetic repair fabric according to claim 1, wherein the at least one barrier layer is asymmetric.

30 23. The prosthetic repair fabric according to claim 1, wherein the at least one barrier layer includes a pair of barrier layers disposed on opposite sides of the layer of mesh fabric, the layer of mesh fabric being disposed between the pair of barrier layers.

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24. A prosthetic repair fabric for repairing a tissue or muscle wall defect located in the inguinal canal near the spermatic cord, the inguinal canal having a medial corner and a lateral end, the prosthetic repair fabric comprising:

a layer of mesh fabric with a plurality of interstices that are constructed and arranged to allow tissue ingrowth, the mesh fabric being susceptible to the formation of adhesions with sensitive tissue and organs, the mesh fabric including a medial section and a lateral section that are configured to be positioned adjacent the medial corner and the lateral end of the inguinal canal, respectively, when the prosthetic repair fabric is placed in the inguinal canal; and

at least one barrier layer that inhibits the formation of adhesions with sensitive tissue and organs, the barrier layer being disposed on at least one side of the layer of mesh fabric to inhibit the formation of adhesions between the spermatic cord and the mesh fabric, the barrier layer including at least one flap constructed and arranged to be folded through the mesh fabric to isolate the spermatic cord from internal edges of the mesh fabric when the spermatic cord is routed through the prosthesis.

25. The prosthetic repair fabric according to claim 24, wherein the layer of mesh fabric has an aperture adapted to receive the spermatic cord therethrough, the flap being positioned adjacent the aperture.

26. The prosthetic repair fabric according to claim 25, wherein the at least one flap includes a plurality of flaps disposed about the aperture.

27. The prosthetic repair fabric according to claim 24, wherein the flap includes at least one portion that is constructed and arranged to be wrapped about the spermatic cord.

28. The prosthetic repair fabric according to claim 24, wherein the layer of mesh fabric includes a slit extending inwardly from an outer edge thereof toward the flap.

29. The prosthetic repair fabric according to claim 28, wherein the layer of mesh fabric further includes a keyhole positioned adjacent the flap, the slit extending from the keyhole to the outer edge of the layer of mesh fabric.

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30. The prosthetic repair fabric according to claim 28, wherein the slit extends in a longitudinal direction along the lateral section to form a pair of tails that are configured to receive the spermatic cord therebetween.

5 31. The prosthetic repair fabric according to claim 24, wherein each of the layer of mesh fabric and the barrier layer includes a medial edge and a lateral edge opposite the medial edge, the medial edge of the barrier layer being disposed adjacent the medial edge of the layer of mesh fabric and the lateral edge of the barrier layer being disposed intermediate the medial and lateral edges of the layer of mesh fabric, the flap being disposed at the lateral
10 edge of the barrier layer.

32. The prosthetic repair fabric according to claim 31, wherein a substantial portion of the lateral section is free of the barrier layer.

15 33. The prosthetic repair fabric according to claim 32, wherein the flap is located proximate a central portion of the layer of mesh fabric.

20 34. The prosthetic repair fabric according to claim 31, wherein the medial edges of the layer of mesh fabric and the barrier layer are rounded medial to approximate the shape of the medial corner of the inguinal canal.

25 35. The prosthetic repair fabric according to claim 34, wherein the layer of mesh fabric and the barrier layer are connected by a series of stitches, the flap being free of the series of stitches.

30 36. The prosthetic repair fabric according to claim 17, wherein the series of stitches includes at least one series of continuous stitches having a stitch pattern, at least a portion of the stitch pattern approximating the shape of the rounded medial edges.

37. The prosthetic repair fabric according to claim 36, wherein the at least one series of continuous stitches includes a pair of continuous stitches, the stitch pattern for each of the pair of continuous stitches approximating the shape of the rounded medial edges.

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38. The prosthetic repair fabric according to claim 24, wherein the layer of mesh fabric is formed from polypropylene.

39. The prosthetic repair fabric according to claim 24, wherein the barrier layer is formed from ePTFE.

40. The prosthetic repair fabric according to claim 24, wherein the layer of mesh fabric and the barrier layer are symmetric.

41. A method of limiting the incidence of postoperative adhesions arising from the repair of a tissue or muscle wall defect in the inguinal canal near the spermatic cord, the inguinal canal including a medial corner and a lateral end, the method comprising steps of:

(a) providing a layer of mesh fabric with a plurality of interstices that are constructed and arranged to allow tissue ingrowth, the mesh fabric being susceptible to the formation of adhesions with sensitive tissue and organs, the mesh fabric including a medial section and a lateral section that are configured to be positioned adjacent the medial corner and the lateral end of the inguinal canal, respectively, when the prosthetic repair fabric is placed in the inguinal canal;

(b) providing at least one barrier layer that inhibits the formation of adhesions with sensitive tissue and organs;

(c) overlaying the barrier layer on at least one side of the layer of mesh fabric to cover at least a portion of the medial section that is to be positioned adjacent the spermatic cord when the prosthetic repair fabric is placed in the inguinal canal, the barrier layer to inhibit the formation of adhesions between the spermatic cord and the mesh fabric;

(d) maintaining at least a portion of the lateral section of the mesh fabric free of the barrier layer on both sides thereof to enhance tissue ingrowth therein; and

(e) positioning the layer of mesh fabric in the inguinal canal adjacent the tissue or muscle wall defect with the barrier layer disposed between the layer of mesh fabric and the spermatic cord.

42. The method according to claim 41, further comprising a step (f) of attaching the barrier layer to the layer of mesh fabric.

43. The method according to claim 42, wherein step (f) includes stitching the barrier layer to the layer of mesh fabric.

5 44. The method according to claim 41, further comprising a step (g) of folding a portion of the barrier layer through the layer of mesh fabric to isolate the spermatic cord from an interior edge of the mesh fabric.

45. The method according to claim 44, wherein step (g) includes a step of wrapping a portion of the spermatic cord with the portion of the barrier layer.

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